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INTERAGENCY TASK FORCE ON ACID PRECIPITATION

**First Annual Report to the President
and the Congress of the United States**

January 1982

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INTERAGENCY TASK FORCE ON ACID PRECIPITATION

First Annual Report

to the President and the Congress

of the United States

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Participating Federal Departments and Agencies:

Department of Agriculture (DOA), Joint Chair

Environmental Protection Agency (EPA), Joint Chair

National Oceanic and Atmospheric Administration (NOAA), Joint Chair

Department of the Interior (DOI)

Department of Health and Human Services (HHS)

Department of Commerce (DOC)

Department of Energy (DOE)

Department of State (DOS)

National Aeronautics and Space Administration (NASA)

Council on Environmental Quality (CEQ)

National Science Foundation (NSF)

Tennessee Valley Authority (TVA)

EXECUTIVE SUMMARY

The Interagency Task Force on Acid Precipitation has concentrated its first year's efforts on planning and implementing the National Acid Precipitation Assessment Program.

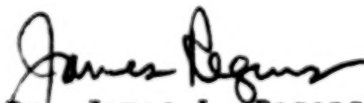
The National Program was mandated by the Acid Precipitation Act of 1980 (P.L. 96-294) to increase our understanding of the causes and effects of acid rain. The National Program includes research, monitoring and assessment activities that emphasize the timely development of a firmer scientific basis for decision making.

The first Annual Report provides an overview of the scope and policy focus of the research program, Task Force accomplishments, and future activities. The integrated research efforts of the National Program began with the start of FY 1982. Policy-relevant information from this comprehensive research program should start becoming available at the end of FY 1982. The next Annual Report (January 1983) will describe the results of the first full year of research and the implications of those findings.

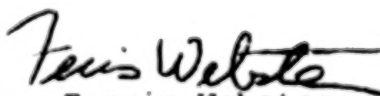
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I. INTRODUCTION

A. Purpose of the First Annual Report

The Acid Precipitation Act of 1980 (Title VII of P.L. 96-294) created the Interagency Task Force on Acid Precipitation (the Task Force) to plan and implement the National Acid Precipitation Assessment Program (NAPAP). The Act mandates that the Task Force issue an Annual Report to the President and the Congress on the status of the national program. This first Annual Report describes progress in establishing the National Program since passage of the Act. The report outlines the scope and policy focus of the research underway, Task Force accomplishments, and describes future activities.

The Task Force was officially constituted in October 1980 and the National Program began in October 1981, with the start of fiscal year (FY) 1982. During its first year of operation, the Task Force concentrated on drafting and reviewing a comprehensive ten-year plan for the program; establishing an effective research management structure; and developing the first two interagency budgets (for FY 1982 and FY 1983).

Because the integrated federal research effort has just begun, this report does not include major new findings or research results. Rather, it describes the purposes and development of the program as well as the context in which it functions. Future Annual Reports will emphasize research results and their implications. These reports will serve as a means of revising and updating the ten-year National Acid Precipitation Assessment Plan and will provide analyses of the current state of scientific information and timely assessments of the options for managing acid precipitation and its impacts.

B. Background on the Acid Rain Issue

Acid rain has become one of the major environmental issues facing our nation and a matter of international concern. Acid precipitation occurs in varying degrees of severity at different times and places in North America. However, the circumstances of its formation, the nature of its effects under different conditions, and the effectiveness of potential controls are currently the subject of intense debate. The primary concern is that the deposition of acids may be having detrimental effects on ecosystems, water resources, crops and building materials.

Our knowledge of the phenomenon and consequences of acid precipitation must be improved so that we can adequately: 1) establish and verify the relation between emissions and deposition; 2) determine dose-response functions and the extent of the potential impacts so the character and magnitude of the threats we face are clear; and, 3) assess the relative costs and benefits of possible amelioration strategies so the most effective options can be chosen to manage acid

precipitation. Because the options to mitigate acid rain and its effects will probably be costly, it is important that more adequate scientific information exist to ensure that any remedial actions will be effective. A more complete description of the acid rain issue and the state of the science is presented in the National Acid Precipitation Assessment Plan (March 1982).

C. Establishment of a National Research and Assessment Program

Recognizing the high level of concern about the acid rain issue and the need for timely production of a firmer scientific basis for policy decisions, Congress passed the Acid Precipitation Act of 1980. This legislation mandated the establishment of a comprehensive ten-year national program to increase our understanding of the causes and effects of acid rain. In compliance with the Act, the federal agencies formed the Interagency Task Force on Acid Precipitation to plan and implement the National Program. A vigorous policy-oriented effort is now underway, with federal support of acid rain research and assessment activities increasing by two-thirds--from \$11 million in FY 1980 to \$18.2 million for FY 1982. The Task Force's efforts are directed toward developing, as expeditiously as possible, the information needed by policymakers to formulate appropriate actions to deal with acid rain. The Task Force itself has no regulatory authority but will periodically (at the minimum, annually) report to the President and the Congress on the state of our knowledge, what further research is needed, and the policy-relevant implications of the available information. The next two parts of this report briefly describe the activities of the Task Force and status of the National Program.

II. INTERAGENCY TASK FORCE ON ACID PRECIPITATION

A. Organization and Responsibilities

The Interagency Task Force on Acid Precipitation is charged with planning, implementing and managing a comprehensive ten-year national research program to examine the causes and effects of acid precipitation. Jointly chaired by the Department of Agriculture, Environmental Protection Agency and National Oceanic and Atmospheric Administration, the Task Force's membership includes the Departments of the Interior, Health and Human Services, Commerce, Energy, and State; as well as the National Aeronautics and Space Administration; Council on Environmental Quality; National Science Foundation; and Tennessee Valley Authority. The Task Force also includes the Directors of Argonne, Brookhaven, Oak Ridge and Pacific Northwest National Laboratories and four Presidential appointees. An organization chart for the Task Force is shown on page 18.

1. Task Force

The Task Force functions as an interagency board that oversees and manages the National Acid Precipitation Assessment Program (NAPAP). The Task Force is committed to conducting an intensive, policy-oriented research program that provides timely input to policymaking.

The primary responsibilities of the Task Force are to:

- Develop and update the National Acid Precipitation Assessment Plan;
- Oversee and implement a comprehensive ten-year research program that coordinates and focuses the activities of the federal agencies;
- Provide annual reports on the research program's progress and policy implications;
- Maintain an inventory of federally funded acid precipitation research projects;
- Produce an annual interagency budget for the federal program;
- Encourage productive interaction between federal efforts and private sector, academic, state and local governmental and international activities;
- Obtain nonfederal input to the planning and program activities.

The Task Force meets at least three times a year to develop budgets, establish objectives, set priorities, approve plans and reports, and conduct program reviews. All federal acid precipitation research and assessment activities are coordinated and integrated by the Task Force to form a cohesive national program.

2. Budget Process

The role of the Task Force in planning the interagency budget for the National Program is a highly effective aspect of the federal effort. The Task Force develops a coordinated interagency budget for the National Acid Precipitation Assessment Program. By working together through the Task Force, the agencies have established a research program that focuses on addressing national needs while building on the research interests of the individual agencies. The strong interagency planning process prevents proliferation of loosely related projects and thus eliminates wasteful duplication and avoids crucial omissions.

The Task Force sets the research goals for the National Acid Precipitation Assessment Program, identifies the projects needed to meet those goals, and decides which agencies are best suited to conduct the necessary work. The result is a tight, well-designed program of interlocking projects, with each agency contributing to specific aspects of the overall national effort.

3. Program Coordination Office

The Task Force's Program Coordination Office staffs the Joint Chairs in coordinating the planning and management of the program. This office also disseminates information on the program and serves as the primary contact point for states, private groups, the public and other countries. The office is currently housed at the Council on Environmental Quality. It is managed by the Task Force's Executive Director and includes personnel supported by the Joint Chairs (DOA, EPA and NOAA). The Program Coordination Office and its interagency activities are funded by DOA, EPA, NOAA, DOI and DOE.

4. Technical Task Groups

The Task Force has ten working-level Task Groups, one for each of the National Program's nine research categories (see page 11) and one for international activities. These technical groups are responsible for performing detailed planning and implementation functions. The Task Groups include scientists and program managers from all the participating federal agencies and representatives from the four participating National Laboratories.

5. Research Coordination Council

The Research Coordination Council is responsible for integrating the efforts of the various Task Groups and develops draft reports, program plans, budgets, and other recommendations for consideration by the full Task Force. The Joint Chairs have designated the Task Force's Executive Director as chairman of the Research Coordination Council. The Council also includes the leaders of all the Task Groups, the chairperson of the National Laboratory Consortium and other appropriate agency representatives. The Council meets at least four times a year to oversee the Task Groups and to provide input to the full Task Force.

6. National Laboratory Consortium

The four National Laboratories on the Task Force have formed a consortium to organize and coordinate their efforts. The National Laboratory Consortium serves to integrate their acid precipitation research efforts and assists the Task Force in planning and conducting research and assessment activities. Each year the Consortium elects its own chairperson to participate in the Research Coordination Council.

8. Past Activities and Accomplishments

The Task Force officially began operation in October 1980. During its first year, the Task Force concentrated on developing a sound ten-year national plan, forming an effective management structure, preparing interagency budgets (FY 1982 and FY 1983), establishing liaison and coordination with nonfederal research and monitoring efforts, and beginning to implement the comprehensive National Program. A chronological listing of Task Force activities from October 1980 through January 1982 is provided on page 19.

The initial major accomplishments of the Task Force include:

1. Development of the National Acid Precipitation Assessment Plan

This Congressionally mandated document provides a broad blueprint for the National Program. It is written for a general audience and describes the issues, information needs and research planned to meet those needs, program objectives, priorities, outputs and resources, and the organization and management of the Task Force.

In accordance with the Act, a draft National Acid Precipitation Assessment Plan was submitted to Congress in January 1981. Two thousand copies were distributed and comments were received from state and local governments, universities, environmental groups, various industries, the general public, and other nations. The many valuable suggestions of these groups were given careful consideration in the revision of the draft National Plan.

In addition to receiving public comments, the Task Force took other steps to ensure adequate review of the draft National Plan. A joint U.S. National Academy of Sciences and Royal Society of Canada Scientific Committee on Acid Precipitation reviewed the draft plan in March 1981. This bilateral group of 14 prominent scientists provided the Task Force with a very useful critique of the draft document.

In April 1981, the Task Force sponsored a workshop of nonfederal experts to review critically the plan and provide suggestions on how the federal efforts could best be coordinated with the state and private sector activities. The workshop involved a balanced group of 27 participants with diverse expertise and affiliations, including state governments, environmental groups, and various industries. The participants determined the draft was, in general, an excellent beginning and they suggested many valuable improvements.

In June 1981, a delegation of Canadians representing various federal and provincial research groups met with Task Force representatives to discuss our draft plan. Information was exchanged on the two nations' acid rain research efforts and the participants agreed to establish ongoing mechanisms for coordinating research and to continue and expand collaboration on monitoring activities.

The Task Force has used the recommendations from these diverse sources to revise the draft plan. A final version of the National Acid Precipitation Assessment Plan will be issued by the Task Force in March 1982. Improvements to the draft plan include expansion of the sections on control technologies and international cooperation, focusing greater attention on the role of state and private sector efforts in the National Program, and revising the program management section to reflect the improved organizational structure developed by the Task Force. The linkages between research on aquatic and terrestrial ecosystems have been reinforced and more emphasis is placed on studying the effects of acid precipitation on materials.

Through the Task Force's efforts to make these and other improvements, we are confident the final plan provides a sound blueprint for the National Acid Precipitation Assessment Program. The Task Force's Annual Reports will provide a mechanism for periodically updating and refining the National Plan.

2. Formation of an Effective Management Structure for the National Program

The Task Force has established a management structure and processes to ensure effective planning, implementation and oversight of the National Acid Precipitation Assessment Program. As shown on the organization chart (page 18), a series of interagency bodies has been created and is functioning.

A Program Coordination Office has been established and serves as the Joint Chairs' focal point for coordinating interagency planning and management activities. The Office distributed two thousand copies of the draft plan, workshop reports and other documents during the last year. It has responded to numerous information requests and provided a central contact point for the program. Comments and suggestions on the program and draft plan were collected, evaluated and used in revision of the National Plan.

Ten technical Task Groups were created and have been meeting to develop detailed program plans and budgets. The Research Coordination Council was also formed and is functioning to oversee and integrate the Task Groups' activities. These Task Force bodies are working together to ensure continuing and efficient administration of the National Program.

3. Development of FY 1982 and FY 1983 Budgets for the National Program

One of the major responsibilities of the Task Force is to develop annual interagency budgets for the program. Working with all the agencies, the Task Force has established an effective process to integrate and coordinate the various agencies' program budgets into a single cohesive interagency request. The Task Force developed the President's FY 1982 budget request for acid precipitation research. The President's FY 1983 budget proposal for the National Program was also prepared by the Task Force.

4. Implementation of an Accelerated and Expanded National Research Program

With the beginning of FY 1982, the Task Force initiated the comprehensive national research program that Congress mandated. Research on acid precipitation is not only being coordinated, but also expanded and accelerated. Federal research funding has increased by about two-thirds from FY 1980 to FY 1982. The FY 1982 budget breakout is shown on page 21. The President's FY 1983 budget requests a further 20 percent increase in funding for the National Program.

New research is being started on natural sources, atmospheric processes, terrestrial and aquatic impacts and material effects. Expansions of monitoring and assessment activities are also underway. These efforts are described in more detail in Part III and summarized in table form on pages 22 to 26.

5. Establishment of Coordination with Nonfederal Activities

The Task Force is committed to the establishment of a National Program that not only links the federal efforts, but also coordinates these with the research and monitoring activities of state and local governments, private sector groups, environmental organizations and other countries. Initial steps have been taken to develop and encourage such cooperation and more extensive joint planning activities will be held.

Besides reviewing the draft National Plan, the Task Force's April 1981 workshop of nonfederal experts began a dialogue with state and private sector groups. The report of that workshop describes the participants' ideas concerning how coordination and cooperation can best be accomplished. The Task Force is implementing many of these suggestions and is actively pursuing continued exchanges of information with nonfederal groups.

Task Force representatives have held meetings with major nonfederal groups sponsoring research, such as the Electric Power Research Institute (EPRI), and Canadian government scientists. These meetings have focused on reviewing programs and establishing a basis for better understanding and closer coordination of efforts.

C. Task Force Activities for FY 1982

In addition to implementing a vigorous research program, the Task Force plans other significant interagency activities for FY 1982. These activities aim to strengthen the National Program and its relationship to nonfederal efforts. Highlights of anticipated Task Force activities in FY 1982 include:

1. Completing a Detailed Operating Plan for the NAPAP

The technical Task Groups are currently working on drafts of detailed planning documents for their respective research areas. The Research Coordination Council will oversee the development of an integrated and detailed operating plan for the entire program. This document will supplement the more generalized ten-year National Acid Precipitation Assessment Plan and serve as a key tool in helping the Task Force manage the National Program.

2. Preparing the First Critical Assessment Document

A critical and comprehensive assessment of the current state of our knowledge and its policy implications is underway. A wide range of available information is being collected and analyzed by federal and nonfederal scientists, with EPA having responsibility for coordinating the production of a Task Force document and summary. To ensure the highest quality assessment possible, rigorous scientific peer reviews will be made before the document is issued. This first critical assessment document will be valuable to policymakers and researchers in examining the status of our knowledge. A second critical assessment is planned after the first five years of the National Program, in order to reevaluate the state of knowledge at that time.

3. Producing an Inventory of Federally and State-supported Research

The Task Force will inventory all federal- and state-supported acid rain research. This initial tabulation will be maintained and updated in the future for use by the Task Force and all interested parties. A related inventory of private sector activities is underway (coordinated by the American Petroleum Institute) and will be compatible with the Task Force effort so that a complete inventory of all acid precipitation research and monitoring activities in the U.S. will result.

4. Conducting Joint Planning Activities with States and Private Sector Groups

The Task Force will hold workshops and technical meetings with scientists from states, private sector groups or other countries that conduct significant research and monitoring activities. The Task Force will seek joint sponsorship of such meetings to facilitate the coordination and development of cooperative efforts. These joint planning functions will help avoid duplication or gaps in the overall national and international effort, while ensuring that the maximum scientific information is gained from the funds expended by all sources.

5. Convening the First Annual Meeting of the National Acid Precipitation Assessment Program

This meeting will involve participants from throughout the federal effort as well as experts and managers from nonfederal groups. The meeting will emphasize critical reviews of existing projects and planning of future activities.

6. Establishing a National Trends Network (NTN)

The deposition monitoring task group is developing a detailed strategy for the National Trends Network. Once the network design criteria are completed, existing monitoring sites will be examined and the Task Force will begin making the necessary additions and changes to establish a standardized NTN. The current National Acid Deposition Program (NADP) network will provide a foundation for the NTN.

In summary, the Task Force has accomplished a great deal over the past year in implementing the Acid Precipitation Act of 1980. A viable management structure has been established, and a comprehensive federal research and assessment effort is underway. The mechanisms for coordinating with nonfederal activities are in place and will provide for a more cohesive national effort. The Task Force is planning to take a number of steps in FY 1982 to further strengthen the National Acid Precipitation Assessment Program.

III. NATIONAL ACID PRECIPITATION ASSESSMENT PROGRAM

A. Status and Scope of the Program

The National Acid Precipitation Assessment Program's first interagency budget (FY 1982) and the distribution of funds by agency and research category are shown in the table on page 21. Federal funding of acid rain research has increased from \$11 million in FY 1980 to \$18.2 million in FY 1982. The Task Force is focusing these enhanced resources on accelerating and expanding the research and monitoring activities so that significant results from the program will be available as soon as possible.

The first five years of the National Program will produce data and policy-relevant information which should substantially reduce the uncertainties about the causes and effects of acid precipitation. It is anticipated that policy-relevant information will start becoming available at the end of FY 1982. The next Annual Report (January 1983) will describe the progress made in the first full year of research and the implications of those results. An initial critical assessment of the state of our knowledge and its implications is underway.

The National Acid Precipitation Assessment Program provides a comprehensive effort to examine the multitude of subjects relevant to understanding and addressing the acid rain issue. Activities are being conducted in the following research categories:

<u>Research Category</u>	<u>Coordinating Agency</u>
A. Natural Sources	NOAA
B. Man-made Sources	DOE
C. Atmospheric Processes	NOAA
D. Deposition Monitoring	DOI
E. Aquatic Impacts	EPA
F. Terrestrial Impacts	DOA
G. Effects on Materials	DOI
H. Control Technologies	EPA
I. Assessments and Policy Analysis	EPA

A number of research tasks are being performed in each of these categories. A summary of the research tasks including their relative priority, duration and agency involvement is shown in the table on pages 22 to 26. This table provides a brief overview of the research being conducted under the National Program. A more detailed description of the research is presented in the National Acid Precipitation Assessment Plan (March 1982).

B. Program Strategy

In developing the National Acid Precipitation Assessment Program, the Task Force used the following strategy:

- o Build Upon Previous Efforts--The Program, in accordance with its enabling legislation, has used the results of the previous work to develop a national acid rain program. The former Acid Rain Coordinating Committee (ARCC) was reconstituted into the statutory Task Force and the ARCC draft plan was used as a foundation for developing the current Plan.
- o Use Existing Knowledge--The National Program builds upon the knowledge and experience already accumulated by scientists from the United States, Canada, Europe and elsewhere. Coordination will be maintained between federally funded research and research supported elsewhere. Available research results and historical records have been used to provide information and guidance in the design of future research and monitoring efforts.
- o Establish a Long-Term National Trends Network--The development and long-term maintenance of a carefully designed National Trends Network (NTN) is essential in order to provide a continuous record for use in documenting and understanding changes in the chemistry of wet and dry acid deposition. The highest standards of quality control and assurance will be used in the operations of the NTN so that its records will be reliable. Existing monitoring activities, such as those of the National Atmospheric Deposition Program (NADP), are being integrated into the NTN.
- o Conduct Research to Develop New Knowledge--The research being conducted in the National Program is intended to increase rapidly our understanding of the phenomenon and consequences of acid precipitation. The emphasis in the Program's research is on activities which most effectively contribute to establishing a firmer basis for decision making. The Program is utilizing the expertise available in federal and state agencies, universities, industry, private contractors, and research institutions. Information from research activities initiated as part of the National Program will become available in 1983, and will continue to be produced throughout the remainder of the decade.
- o Evaluate Information and the Policy Implications--Information generated by the National Acid Precipitation Assessment Program and other research efforts in this country and abroad, are expected to contribute significantly to our knowledge. The information produced will be synthesized periodically, subjected to scientific peer review, published and interpreted to guide decisions on future research. The Task Force will report annually to the Congress, the President and the nation on the research program's progress and policy-relevant implications of the existing knowledge on acid rain.

C. Research Policy Focus

In the simplest terms, policymakers are concerned with answers to three general questions about acid precipitation: 1) What is it? 2) What are its impacts? 3) How can it be effectively managed? To address these basic policy concerns, scientific information is needed, and specific research tasks must be undertaken to provide that information. The National Acid Precipitation Assessment Program (NAPAP) is conducting research to supply the following information needs:

1. Policy Concern: What are the sources, characteristics, and trends in acid precipitation?

Information Needs

NAPAP
Research Tasks
Keyed to Summary
of Research
pages 22 to 26

- a. What are the natural sources of acidic and alkaline materials?

Research is being conducted to determine the extent, character and contribution of natural sources from both land and oceans.

A 1,2

- b. What are the man-made sources of acidic material?

Inventories of the man-made emissions of acid precursors such as SO_x and NO_x as well as oxidant precursors such as hydrocarbons are being analyzed and improved.

B 1,2

- c. What is the relationship between source and receptor regions? How are acids and their precursors transported and removed from the atmosphere?

Intensive research is underway to improve our capability to examine and predict the movement of air masses and pollutants including tracer experiments and computer modeling.

C 1,2,5,6

- d. What factors control the production of acids in the atmosphere from their precursors? How do precursors and other pollutants interact?

Laboratory and field studies are being conducted to investigate the complex chemical and physical changes that occur in the atmosphere (particularly within clouds) and the role of oxidants in acid formation.

C 3,4

- e. What is the geographic distribution of acid precipitation?

Monitoring networks are being expanded and standardized. These include a well-designed National Trends Network and Global Trends Network. Continued gathering of data will enable long-term trends to be documented and studied.

D 1,2

- f. How has the average acidity of precipitation changed? At what rate?

Analysis of the existing monitoring data and indirect evidence from lake sediments, tree rings, and ice cores will be used to estimate past trends to the extent possible.

I 4,5c

- g. What is the relative contribution of wet versus dry deposition of acids?

Efforts are underway to develop methods to measure dry deposition accurately. Once developed, such techniques will be incorporated into the National Trends Network so the amount and composition of dry deposition can be measured reliably.

D 3
I 4

2. Policy Concern: What damages are occurring or could occur from acid precipitation and at what rate?

Information Needs

NAPAP
Research
Tasks

- a. How does acid precipitation affect water resources and aquatic ecosystems and at what rate?

Research is being done on lakes, streams, wetlands and whole watersheds to determine the factors controlling acidification. The impacts on food chains and organisms ranging from fish to microscopic plants are being investigated.

E 2,3,4,5

- b. How does acid precipitation affect terrestrial ecosystems?

The potential impacts of acid deposition on forests, rangelands, wetlands, wildlife, crops and soils are being studied. Beneficial and detrimental aspects are being studied in a wide range of ecosystems. The interaction of acid precipitation with other factors such as disease, pests and drought is under investigation.

F1,2,3,4,5,6,
7,10,11,12

- c. What geographic areas and resources are most sensitive to acidification?

Surveys are being made of water resources, soils, geology and other factors to improve our knowledge of what areas and resources may be vulnerable to damage. The extent of lakes, streams and groundwater that are susceptible to acidification is being documented.

E 1
F 9

- d. What are the potential human health implications of acid precipitation's effect on drinking water and food supplies?

The role of acidification in leaching toxic materials into our water supplies and possible contamination of fish and crops is being studied. Drinking water will be monitored in sensitive areas.

E 6,7,11
F 8

- e. Does acid precipitation significantly damage materials and cultural resources? If so, what are the costs?

The effects of acid deposition on materials such as building stone, metals, and paints is being examined. Techniques to differentiate the effects of various pollutants will be developed. The cost of damage to man-made structures and cultural resources will be estimated.

G 1,2,3

3. Policy Concern: What are the options for effectively managing acid precipitation and its effects?

Information Needs

NAPAP
Research
Tasks

- a. What are the implications of currently available scientific information for action?

An in depth critical assessment of existing scientific information is underway and the Task Force's Annual Reports will continually update that information and describe the current implications. Special assessments will also be made for each research area as our knowledge develops.

I 1,2,3,4,
5a-k

- b. What methods are available to control emissions affecting acid deposition?

Analyses will be made of the effectiveness, costs and feasibility of controlling emissions of acids, precursors and oxidants. New technologies are under development and diverse strategies to control emissions will be examined. Optimal solutions combining various technologies and strategies will be explored.

I 1,2,5f

- c. What methods are available to mitigate the effects of acid precipitation?

Information is being generated and analyzed on the effectiveness, costs and limitations of treating drinking water, liming lakes, applying protective coatings to materials, breeding more acid tolerant organisms and other measures to help mitigate impacts.

E 7,12
F 11
G 4
I 2

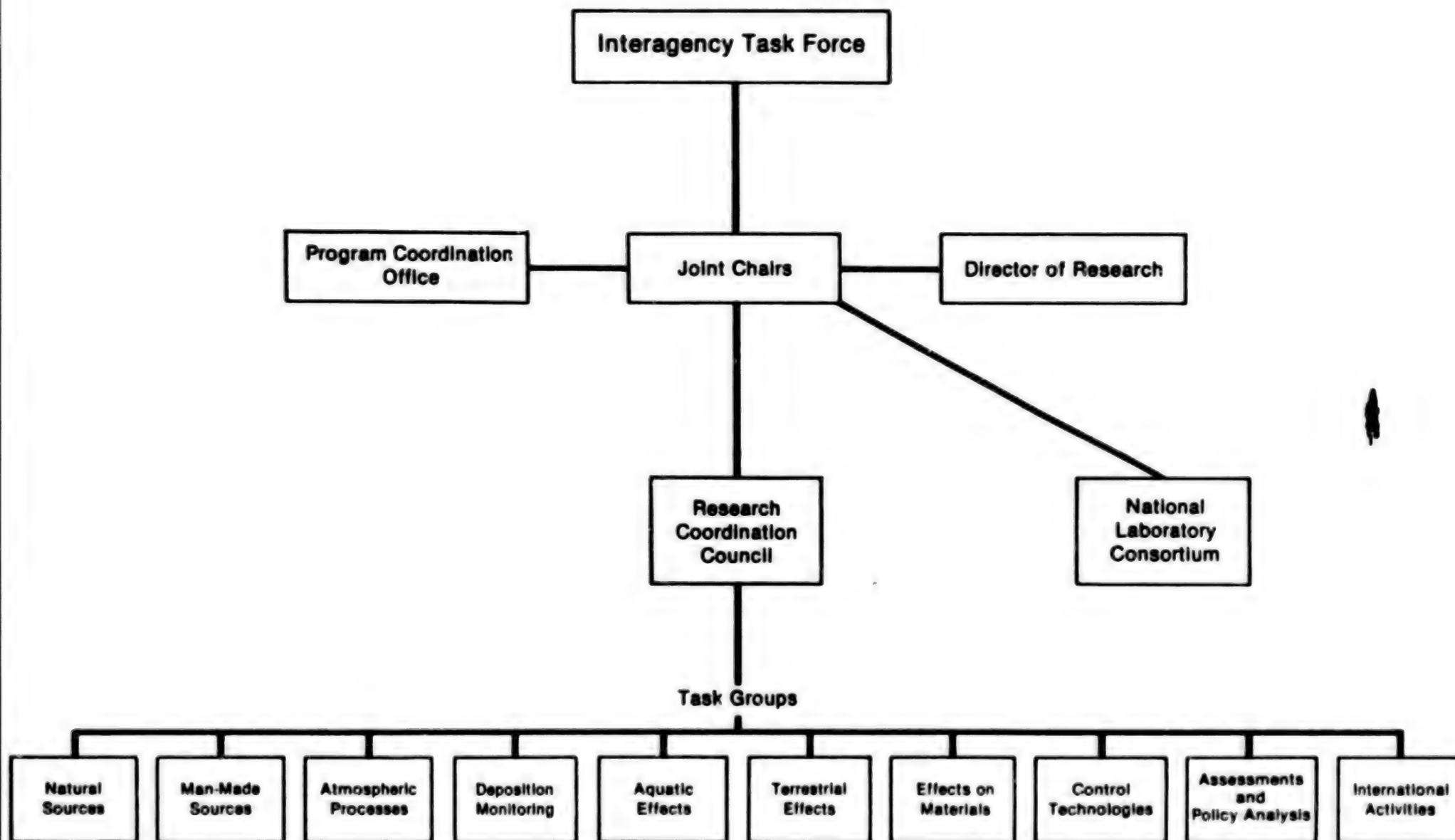
- d. What are the types and magnitudes of uncertainties in current scientific knowledge about each aspect of the acid precipitation phenomenon (i.e. sources, atmospheric process, effects)? How sensitive are conclusions to each type of uncertainty?

I 4,5a-k

Sensitivity analyses will be conducted of the entire acid precipitation chain of events as a system. The relative importance of uncertainty about various components of the system will be identified.

The National Acid Precipitation Assessment Program is addressing each of these policy concerns and information needs in the research now underway. Significant new results and assessments should start becoming available after the first full year of the program. The Task Force will disseminate this information through assessment documents, Annual Reports, workshops, conferences and research papers.

INTERAGENCY TASK FORCE ON ACID PRECIPITATION



INTERAGENCY TASK FORCE ON ACID PRECIPITATION

LIST OF ACTIVITIES

OCTOBER 15, 1980 TO FEBRUARY 1, 1982

<u>Date</u>	<u>Activity</u>	<u>Purpose</u>
10/15/80	Initial Task Force meeting	Establish Task Force, begin development of draft National Plan and FY 1982 interagency budget.
11/21/80	Task Force meeting	Develop interagency budget process and agree to designation of coordinating agencies for research categories
1/8/81	Task Force meeting	Discussion and revision of draft plan, review and approve FY 1982 budget
1/16/81	Transmittal of draft National Plan to Congress	Compliance with Acid Precipitation Act of 1980 (P.L. 96-294)
2/1/81	Begin public comment period	2,000 copies of draft Plan distributed to researchers, state and local governments, industry, environmental groups, and the general public
2/20/81	Ad Hoc Working Group meeting	Develop plan for April workshop to review draft National Plan, formation of Task Groups and work on budget process
3/21/81	Joint U.S. National Academy of Sciences/Royal Society of Canada Scientific Committee on Acid Precipitation	Scientific review of Task Force's draft Plan
3/19/81-4/9/81	Ad hoc Task Force Workshop Team meetings	Planning for workshop of nonfederal experts
4/1/81	End official public comment period on draft Plan	Over 250 sets of written comments received from diverse sources
4/20-22/81	Task Force sponsored Workshop (Frederick, Md.)	Workshop of nonfederal experts from states, industry, and environmental groups to review draft Plan and discuss program implementation
5/20/81	Task Group leaders meeting	Review of Workshop report, evaluation of public comments, revision of draft Plan

<u>Date</u>	<u>Activity</u>	<u>Purpose</u>
6/18/81	Task Group leaders meeting	Begin FY 1983 budget process, Task Group leaders discuss their activities and accomplishments
8/6/81	Research Coordination Council (includes Task Group leaders)	FY 1983 budget formulation and evaluation of program proposals
8/13/81	Research Coordination Council	FY 1983 budget and program priorities, improvements to draft Plan
8/18/81	Task Force meeting	Review Task Force activities, consider and approve FY 1983 interagency budget
11/25/81	Research Coordination Council	Review Task Group activities, plan for first Annual Report
12/18/81	Research Coordination Council	Revision of President's FY 1983 budget
1/26/82	Research Coordination Council	Discuss final changes to National Plan, review Task Group functions
2/1/82	Task Force meeting	Review final National Acid Precipitation Assessment Plan.

Interagency Task Force on Acid Precipitation

FY 1982 BUDGET
(\$ thousands)

	<u>EPA</u>	<u>SE</u>	<u>DOA</u> <u>FS</u>	<u>NOAA</u>	<u>DOE</u>	<u>PS</u>	<u>DOI</u> <u>GS</u>	<u>PW</u>	<u>IVA</u>	<u>Total</u>
A. Natural Sources	--	--	--	600	--	--	--	--	--	600
B. Man-Made Sources	870	--	--	--	300	--	--	--	--	1170
C. Atmospheric Processes	3273	--	--	600	805	50	--	--	126	4854
D. Deposition Monitoring	797	304	127	700	497	75	585	--	--	3085
E. Aquatic Impacts	1475	--	135	--	560	98	645	50	133	3096
F. Terrestrial Impacts	1355	964	570	--	122	186	320	50	66	3633
G. Effects on Materials	250	--	--	--	--	235	--	--	--	485
I. Assessments and Policy	1105	--	--	--	260	--	--	--	--	1365
Subtotals		<u>1268</u>	<u>832</u>			<u>644</u>	<u>1550</u>	<u>100</u>		
Totals	<u>9125</u>		<u>2100</u>	<u>1900</u>	<u>2544</u>		<u>2294</u>		<u>325</u>	<u>18,288</u>

NATIONAL ACID PRECIPITATION ASSESSMENT PROGRAM
SUMMARY OF RESEARCH

Research Task (Coordinating Agency)	Priority	Duration (FY)	Agency Involvement*							
			(Participating = 1)				(Contributing = 2)			
			DCA	EPA	NOAA	DOI	DOE	NSF	TVA	Other
A. Natural Sources (NOAA)										
1. Analysis & Assessment of Natural Sources of Acid Deposition	1	1981-1986		2	1	2	2	2		NASA
2. Case Studies of Neutralizing Materials in the Atmosphere	1	1981-1986	2	2	1		2	2	2	NASA
B. Man-Made Sources (DOE)										
1. Inventories of Current Emissions of Pollutants of Interest	1	1981-1990		1			1		2	
2. Developing Models for Emissions & Economic Analysis	1	1982-1990		1			1		2	
3. Baseline Emission Projections	1	1982-1990		1			1		2	
4. Analysis of Historic Emission Trends	2	1982-1986		1			1		2	
5. Detailed Analyses of Factors Affecting Emissions from Man-Made Sources	2	1983-1990		1			1		2	
C. Atmospheric Processes (NOAA)										
1. Research on Long-Range Transport & Dispersion	1	1982-1987		1	1	1	2	2	2	NASA
2. Determining Global & Regional Circulation of Acidic Materials	1	1980-1986		1	1		1	2	2	NASA

* Note - Agencies are considered participating in a task when they have resources specifically committed to it. Contributing agencies are ones conducting work that is relevant to the task but not directly involved as principals in the project.

SUMMARY OF NAPAP RESEARCH
(Continued)

Research Task (Coordinating Agency)	Priority	Duration (FY)	Agency Involvement						
			(Participating = 1)			(Contributing = 2)			
			DCA	EPA	NOAA	DOI	DOE	NSF	TVA Other
3. Investigating Chemical & Physical Transformations	1	1980-1990		1	1		1	2	1 NASA
4. Research on the Scavenging of Particles & Gases by Clouds	1	1980-1990		1	1		1	2	NASA
5. Improving Modeling Data Bases	3	1981-1985		2	2		1		2
6. Improving Computer Simulation	1	1980-1985		1	1		1		
D. Deposition Monitoring (DOI)									
1. Continued Improvement & Evaluation of the Global Trends Networks (GTN)	1	1980-1990		1	1		2		
2. Further Development of National Trends Network (NTN)	1	1980-1990	1	1	1	1	2		1
3. Developing Methods for Sampling Dry Measurements	1	1982-1987	2	1	1	2	1		
4. Expansion & Improvement of the Research Support Networks	1	1980-1990		1	1	1	1		2
E. Aquatic Impacts (EPA)									
1. Monitoring National & Regional Water Quality	1	1982-1987	1	1		1			1
2. Determining Factors that Control Lake Susceptibility	1	1980-1985	1	1		1		2	1
3. Determining Relative Contribution of Nitric and Sulfuric Acid Inputs	1	1981-1986	1	1		1		2	1
4. Evaluating the Significance of Mobilization of Toxic Metals	2	1982-1987	1	1		1	2		1
5. Modeling Watershed Dose/Response Relationship	1	1981-1986	1	1		1	2	2	1
6. Studying Acidification of Drinking-Water Sources	1	1980-1984		1		1			HHS
7. Monitoring Drinking-Water & Evaluating Treatment Methods	2	1983-1986		1		1			HHS

SUMMARY OF NAPAP RESEARCH
(Continued)

Research Task (Coordinating Agency)	Priority	Duration (FY)	Agency Involvement						
			(Participating = 1)			(Contributing = 2)			
			DOA	EPA	NOAA	DOI	DOE	NSF	TVA Other
8. Monitoring Regional Trends in Biological Effects	1	1980-1984		1		1			2
9. Studying Watershed Productivity	1	1980-1990	1	1		1	2	2	1
10. Identifying Vulnerable Growth Stages	1	1980-1985		1		1	2	2	
11. Studying Metal Contamination of Fish	2	1981-1983		2		1	2		
12. Analyzing Mitigation Strategies for Acidified Lakes	2	1982-1987	1	1		1			1

F. Terrestrial Impacts
(DOA)

1. Studying Effects on Growth & Productivity of Forest Trees and Range Plants	1	1980-1990	1	1		1	2	2	1
2. Identifying Vulnerable Growth Stages in Plants	2	1980-1990	1	2			2		
3. Investigating Effects on Metabolic Functions and Cellular Structures	1	1982-1992	1				2	2	
4. Analyzing Acid Deposition Induced Predisposition of Forest and Range Plants to Diseases and Insects	1	1982-1987	1	2					
5. Screening of Crop Species Sensitivity	1	1980-1985	1	1		1	2	2	1
6. Developing Dose-Response Relationships for Crop Growth and Yield	2	1982-1987	1	1			2		2
7. Investigating Acid Deposition Induced Predispositions of Crops to Susceptibility to Diseases and Insects	3	1982-1987	1	1					

SUMMARY OF NAPAP RESEARCH
(Continued)

Research Task (Coordinating Agency)	Priority	Duration (FY)	Agency Involvement							
			(Participating = 1)				(Contributing = 2)			
			DOA	EPA	NOAA	DOI	DOE	NSF	TVA	Other
8. Analyzing Metal Contamination of Crops	3	1982-1984	1				2			HHS
9. Characterizing Soil Vulnerability	1	1982-1985	1	1		1				
10. Studying Effects on the Ability of Soils to Support Vegetation	1	1980-1985	1	1			1	2	2	
11. Analyzing Soil Degradation Mechanisms & Mitigation Measures	3	1982-1987	1	1						
12. Analyzing the Buffering Capacity & Response of Watersheds to Acid Deposition	1	1981-1986	1	1		2	2	2	1	
G. Materials & Cultural Resources (DOI)										
1. Investigating Effects on Materials and Cultural Resources	1	1980-1985		1		1				GSA;DOD;NBS
2. Determining the Susceptibility of Cultural Resources	1	1982-1987		1		1				GSA;NBS
3. Estimating the Costs of Materials Damage	2	1984-1987		1		2		2		GSA;NBS
4. Research on Protective Coatings & Mitigative Treatments	3	1983-1986		1		1				GSA;DOD;NBS
I. Assessments & Policy Analysis (EPA)										
1. Compilation and evaluation of Costs and Performance of Potential Mitigation Measures	1	1982-1991	2	1		2	2			
2. Integrated Assessment of the Acid Precipitation Phenomenon and Potential Mitigation Measures	1	1982-1990	2	1		2	1			CEQ
3. Preparing Special Scientific and Policy Assessment Documents	1	1981-1990	1	1	1	1	1	2	2	DOS;HHS;NASA

SUMMARY OF NAPAP RESEARCH
(Continued)

Research Task (Coordinating Agency)	Priority	Duration (FY)	Agency Involvement							
			(Participating = 1)					(Contributing = 2)		
			DOA	EPA	NOAA	DOI	DOE	NSF	TVA	Other
4. Program Information and Coordination Activities	1	Ongoing	1	1	1	1	1	1		CEQ(1)
5. Special Assessments and Analyses (Program's First 5-Years)	1	-- --	1	1	1	1	1	2	1	DOS;HHS; NASA;NBS
a. National Survey of Sensitive Lakes and Streams (EPA)		1982-1983								
b. Deposition Monitoring Strategy (DOI)		1982-1983								
c. Analysis of Trends in Acid Deposition (EPA)		1983-1984								
d. Atmospheric Processes Analysis (NOAA)		1983-1984								
e. Effects on Agricultural Terrestrial Systems (DOA)		1983-1984								
f. State of the Art in Control Technology (EPA)		1983-1984								
g. Man-made Sources Assessment (DOE)		1983-1984								
h. Effects on Nonagricultural Terrestrial Systems (DOA)		1984-1985								
i. Damage Assessment for Materials and Cultural Resources (DOI)		1984-1985								
j. Natural Sources Assessment (NOAA)		1984-1985								
k. Second Critical Assessment of Scientific Knowledge and Policy Implications (EPA)		1985-1986								

END

1-12-83